

BREAST CANCER

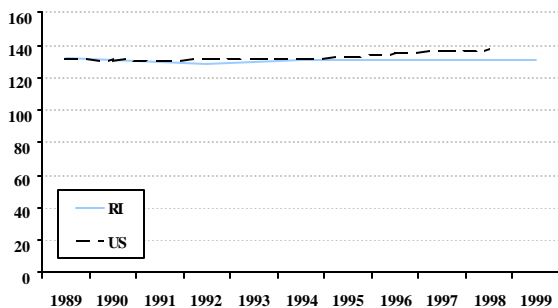
Breast cancer forms in the tissues of the breast. About 80% of all breast cancer cases originate in the lining of the ducts, or passageways, of the breast; this type of breast cancer is called ductal carcinoma. Another 10-15% of all breast cancer cases originate in the lobes of the breast and are called lobular carcinoma. Although cancer originates in these sites, it can spread and invade other areas of breast tissue and the underlying muscle. If the cancerous cells travel to the lymph nodes, they can spread to other areas of the body through the lymphatic system. (RICAN)

Breast cancer is the most commonly diagnosed cancer among RI females (annual average of 812 newly diagnosed cases in each of the five years 1997-2001), and accounted for 14% of all newly diagnosed cancers in 1997-2001, including both males and females. Breast cancer is the second leading cause of cancer death among RI females (annual average of 194 deaths in each of the five years 1996-2000), and accounted for 8% of all cancer deaths in 1996-2000, including both males and females. In Rhode Island, approximately 8,900 females alive today were diagnosed with breast cancer at some point in the past 25 years (2000). (RICR)

Cancer Rates

Figure 6-1. Female breast cancer incidence by year

Average annual invasive breast cancer incidence rates** by year among females, RI and US, 1987-2001***.*



* Invasive includes the following stages of disease at diagnosis: local, regional, distant, and unknown.

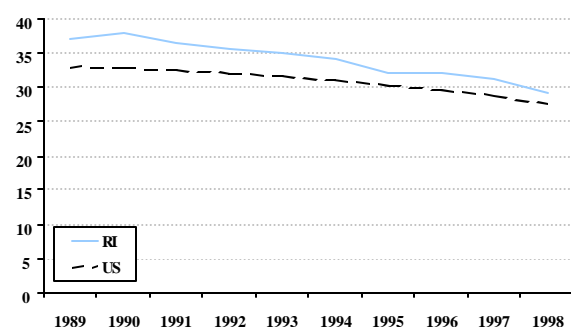
** Rates are age-adjusted to the year 2000 US standard population, expressed as cases per 100,000 population.

*** Rates are five-year moving averages.

Source: RICR, HEALTH – calculated with SEER*Stat; SEER Cancer Statistics Review 1973-1999; 1999 US data is from SEER Public-Use 1973-2000 Data – calculated with SEER*Stat.

The age-adjusted incidence of invasive breast cancer among RI females of all races stayed about the same from 1989 to 1999, hovering around 130 cases per 100,000 females (based on five-year moving averages). In contrast, the age-adjusted incidence of invasive breast cancer among US females of all races increased from about 131 cases per 100,000 females in 1989 to about 137 cases per 100,000 females in 1997 (based on five-year moving averages).

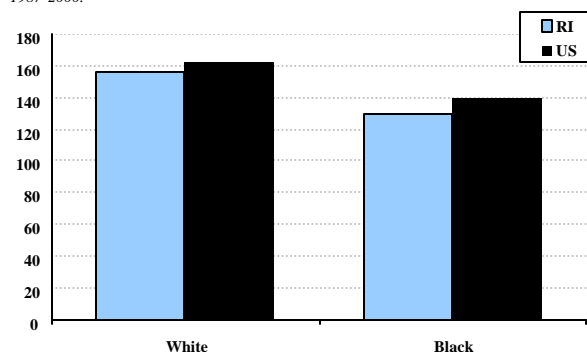
Figure 6-2. Female breast cancer mortality by year
Average annual breast cancer mortality rates* by year among females, RI and US, 1987-2000**.



* Rates are age-adjusted to the year 2000 US standard population, expressed as deaths per 100,000 population.
** Rates are five-year moving averages.
Source: CDC WONDER, CDC; 1998 US data from SEER US Mortality 1969-2000 Data – calculated with SEER*Stat.

The age-adjusted mortality of invasive breast cancer among RI females of all races declined from 37 deaths per 100,000 in 1989 to 30 deaths per 100,000 in 1997 (based on five-year moving averages). Similarly, the age-adjusted mortality of invasive breast cancer among US females of all races declined from 33 in 1989 to 28 in 1997 (based on five-year moving averages). RI breast cancer mortality rates for females were higher than US rates throughout the period of observation.

Figure 6-3. Female breast cancer incidence by race
Average annual invasive breast cancer incidence rates* by race among females, RI and US, 1987-2000.

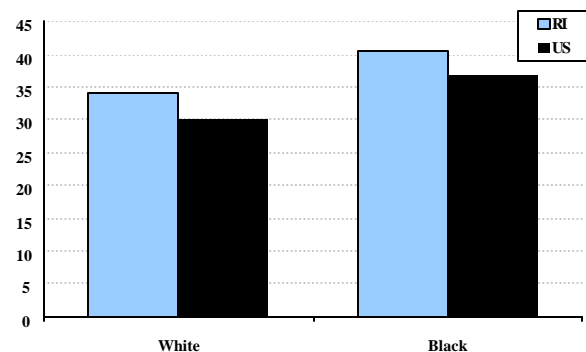


* Rates are age-adjusted to the year 2000 US standard population, expressed as cases per 100,000 population.
Source: RICR, HEALTH; SEER Public-Use 1973-2000 Data; calculated with SEER*Stat.

In RI, during 1987-2000, female breast cancer incidence rates were higher among white females (156 cases per 100,000) than among black females (129 cases per 100,000). This gap was similar among US white females (163 cases per 100,000) and US black females (140 cases per 100,000).

[Note: RI incidence data for 2001 is currently available. US incidence data is only available through 2000. For comparability, the figure at left contains RI data through 2000.]

Figure 6-4. Female breast cancer mortality by race
Average annual breast cancer mortality rates* by race among females, RI and US, 1987-2000.



* Rates are age-adjusted to the year 2000 US standard population, expressed as deaths per 100,000 population.
Source: Office of Vital Records, HEALTH; SEER US Mortality 1969-2000 Data; calculated with SEER*Stat.

In RI, during 1987-2000, female breast cancer mortality rates were higher among black females (41 deaths per 100,000) than among white females (34 deaths per 100,000). This gap was similar among US black females (37 deaths per 100,000) and US white females (30 deaths per 100,000).

Figure 6-3. Female breast cancer mortality by county
Average annual breast cancer mortality rates* among females by county, RI, 1996-2000.



In 1996-2000, the average annual breast cancer mortality rate among females in Kent county (34 deaths per 100,000) was significantly higher than the US rate (28 deaths per 100,000).

[Note: Maps are color-coded based on comparison to US mortality rates. When the US rates fall within the 95% confidence interval (shown in parentheses), it suggests that there is no statistical difference. Please see Key for Maps in **About the Data** (section 3) for a clear delineation of counties.]

* Rates are age-adjusted to the year 2000 US standard population, expressed as deaths per 100,000.
Data source: Office of Vital Records, HEALTH; calculated with SEER*Stat.
Map source: [HEALTHgis](#).

Healthy People 2010 Targets

Mortality: By 2010, reduce the breast cancer death rate to 22.3 deaths per 100,000 females (age-adjusted to the year 2000 standard population of the United States; baseline = 27.9 deaths per 100,000 females in 1998).

Risk Factors

Non-modifiable risk factors for breast cancer include female gender (men can develop breast cancer but it is much more common among women), older age (risk of developing breast cancer increases with age), family history, and genetic risk factors (most commonly, the presence of BRCA1 and BRCA2 genes). (Clinical, ACS Breast) Women with a previous history of breast cancer, history of atypical hyperplasia on breast biopsy, or history of proliferative breast disease without atypia are also at increased risk. (Clinical) White females have a higher risk of developing breast cancer, although black women have a higher risk of dying from breast cancer. (ACS Breast)

Suggested modifiable risk factors for breast cancer include late age at first pregnancy, not bearing children, high socioeconomic status, and history of exposure to high-dose radiation. (Clinical) Associations have also been suggested between breast cancer and oral contraceptives, long-term estrogen replacement therapy, obesity (particularly in post-menopausal women), and a diet high in fat. However, causal relationships have not been established for these associated risk factors. (Clinical)

Prevention

Although breast cancer has been linked to a variety of risk factors, effective preventives are unknown.

Screening

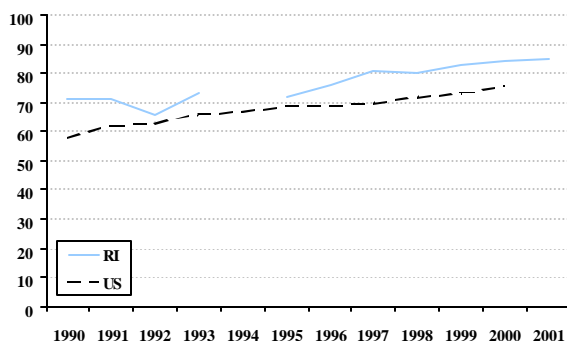
Common screening tests for early detection of breast cancer are mammography, clinical breast examination (CBE), and breast self-examination (BSE). (Clinical) Mammography is effective in finding in situ and localized tumors, which are more likely to be controlled and “cured” than later stage (regional and distant) tumors. A number of clinical trials and clinical-trial-like studies have demonstrated the effectiveness of mammography screening for the reduction of breast cancer mortality, although few researchers have questioned the quality of these studies and the validity of their results. (Gotzsche, Olsen) Despite the recent controversies associated with screening, its aggressive use remains a key control strategy.

The American Cancer Society recommends (ACS):

- Women age 40 and older should have a screening mammogram every year, and should continue to do so for as long as they are in good health.
- Women in their 20s and 30s should have a clinical breast examination (CBE) as part of a periodic (regular) health exam by a health professional preferably every 3 years. After age 40, women should have a breast exam by a health professional every year.
- BSE is an option for women starting in their 20s. Women should be told about the benefits and limitations of BSE. Women should report any breast changes to their health professional right away.
- Women at increased risk should talk with their doctor about the benefits and limitations of starting mammograms when they are younger, having additional tests, or having more frequent exams. Women should discuss with their doctor what approaches are best for them. Although the evidence currently available does not justify recommending ultrasound or MRI for screening, women at increased risk might benefit from the results.

Figure 6-6. Female breast cancer screening by year

Percent of female respondents, age 40 and older, who report that they have had a mammogram within the past two years, RI and US, 1990-2001.



Source: RI-BRFSS, HEALTH; BRFSS, CDC.

The proportion of RI females ages 40 years and older of all races who had received a mammogram within the preceding two years increased from 71% in 1990 to 85% in 2001. Nationally, the median proportion of females ages 40 years and older of all races who had received a mammogram within the preceding two years increased from 58% in 1990 to 76 % in 2000.

From 1989 to 1999, trends in stage-specific breast cancer incidence rates are consistent with screening rates. When broken down by stage of disease at diagnosis, the incidence of *in situ*

and localized breast tumors increased while the incidence of regional or distant breast tumors decreased.

Healthy People 2010 Targets

Screening: By 2010, increase the proportion of females ages 40 years and older who have received a mammogram within the preceding 2 years to 70% (baseline = 67% in 1998).

Treatment

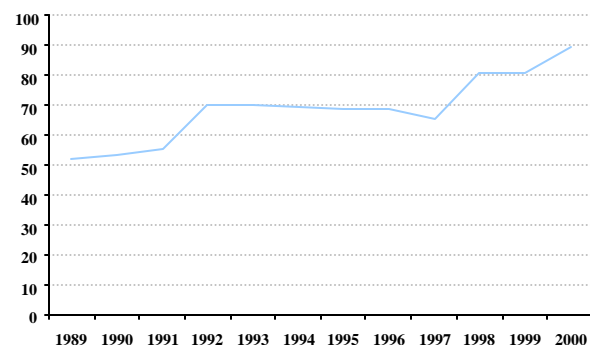
A variety of surgical and non-surgical treatments are available for breast cancer. Appropriate treatment options are determined on an individual basis and depend upon the stage at which the cancer was discovered. Surgical treatment options include lumpectomy, partial mastectomy, total mastectomy, modified radical mastectomy, and radical mastectomy. Non-surgical treatment options include radiation therapy, chemotherapy, hormone therapy, and clinical trials. (RICAN)

In September 2002, the RI Breast Care Task Force distributed the Breast Care Algorithm to oncologists in RI. The Breast Care Algorithm is a “tool for getting cutting-edge, research-based cancer treatment to all RI women.” It provides a model of breast health care that gives physicians guidance on how to manage breast cancer. (Algorithm)

The percent of female breast cancer cases in RI ACOS-approved treatment programs and the percent staged with AJCC staging methodology is detailed below.

Figure 6-7. Female breast cancer in ACOS programs by year

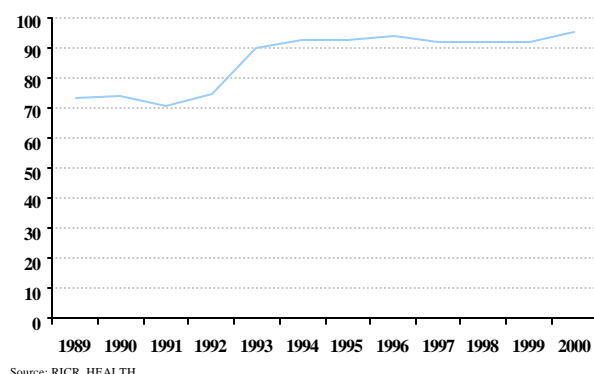
Percent of breast cancer cases that were or are treated in ACOS approved cancer treatment programs by year among females, RI, 1989-2000.



Source: RICR, HEALTH

The percent of female breast cancer case reports from ACOS approved hospital cancer treatment programs in RI increased from 52% in 1989 to 70% in 1992. This proportion remained around 70% from 1992 to 1997, and then increased to 90% in 2000.

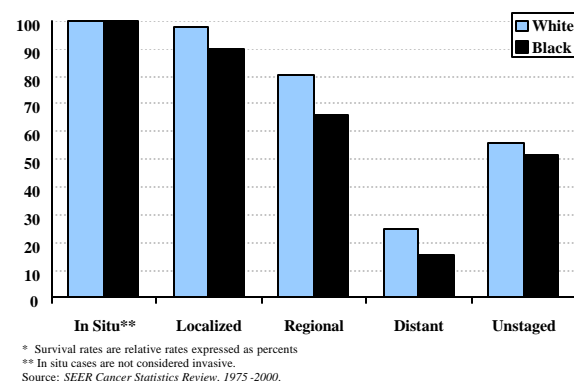
Figure 6-8. Female breast cancer with AJCC staging by year
Percent of breast cancer cases staged with AJCC staging methodology by year among females, RI, 1989-2000.



Prior to a change in the Rules and Regulations of the Rhode Island Cancer Registry in 1992, only about 75% of the breast cancer cases newly diagnosed among RI females were staged using the AJCC system. After the Rules change, the proportion of cases with AJCC staging increased to 90%, and has averaged 93% from 1993 through 2000.

Survival

Figure 6-9. Female breast cancer survival rates by race and stage
Invasive breast cancer five-year relative survival rates* by race and stage of disease at diagnosis among females, US, 1992-1999.



In the US, five year relative survival rates for female breast cancer differ both by stage of disease at diagnosis and by race. Based on data from 1992-1999, breast cancers diagnosed while in situ have survival rates of 100% for both blacks and whites, while cancers diagnosed at later stages have much lower survival rates. For cancers of stages other than in situ, survival rates are higher among whites than among blacks.

Discussion

Summary of Burden

Breast cancer contributes substantially to the cancer burden in Rhode Island.

Among Rhode Island women, breast cancer is the most commonly diagnosed cancer and the second leading cause of cancer death. Approximately 8,900 women alive today were diagnosed with breast cancer at some point in the past 25 years.

In Rhode Island, mortality from breast cancer decreased in the 1990's.

In Rhode Island over the period 1987-2000, mortality from breast cancer decreased 19%, from 37 to 30 deaths per 100,000 women.

Relative Burden

Female breast cancer incidence is lower in Rhode Island than in the United States as a whole, probably due to different screening dynamics.

In recent years, the United States female breast cancer incidence rate has exceeded the Rhode Island rate by about 5%, probably because of differences in screening dynamics between the two areas.

Female breast cancer mortality is higher in Rhode Island than in the United States as a whole.

The Rhode Island female breast cancer mortality rate exceeded the United States rate by about 13% in 1990. By the year 2000, the percent elevation had dropped to 5%.

Disparities

In Rhode Island, black women are less likely to survive breast cancer than white women.

In Rhode Island between 1987 and 2000, white women experienced one breast cancer fatality for every 4.6 newly diagnosed cases of breast cancer, while black women experienced one breast cancer fatality for every 3.2 newly diagnosed cases of breast cancer. Research at the national level suggests that later stage of disease at diagnosis, poorer health care access, and differences in disease history may contribute to this differential. (Race)

Kent county bears a greater burden of female breast cancer compared with the nation as a whole.

The female breast cancer mortality rate for Kent county is significantly higher than the United States rate. Kent's higher mortality may reflect lower mammography use than in other areas of the state, and is worthy of further study to test this and other possible reasons for the differential.

Status of Control Strategies

The burden of breast cancer may be reduced by screening women according to guidelines and by assuring state-of-the-art treatment for all breast cancer patients. Although effective preventives for breast cancer are unknown, current screening with mammography is effective in finding in situ and localized tumors, which are more likely to be controlled and "cured" than later stage (regional and distant) tumors. As such, the primary control strategy for female breast cancer in Rhode Island is screening for breast cancer according to national guidelines. Another important control strategy is to assure state-of-the-art treatment for all cancer patients through improvement of basic treatment infrastructure.

In Rhode Island, the proportion of women screened for breast cancer increased in the 1990's.

In response to aggressive promotion from the RI health care community, the percentage of women age 40 and older who report that they have been screened with mammography within the previous two years increased from 71% in 1990 to 85% in 2001. Rhode Island is ahead of the nation in breast cancer screening, and by 2001, Rhode Island had already exceeded the *Healthy People 2010* goal of 70% (HP). Nonetheless, despite a decade and a half of steady progress, 15% of Rhode Island women age 40 and over are not being screened according to guidelines, a cause for concern. Identifying who these women are, and why they have not benefited from the State's substantial breast cancer screening infrastructure may help us plan special interventions to accelerate the upward trend in eligible women screened according to guidelines.

The Women's Cancer Screening Program (WCSP) has helped increase the percentage of Rhode Island women who are screened for breast cancer.

The WCSP aims to increase the percentage of women who receive mammograms (and Pap tests). Based at HEALTH, the WCSP provides free breast cancer screening services for Rhode Island women who are age 40 or older, uninsured or underinsured, and with incomes at or less than 250% of the poverty level. Since 1995, the WCSP has paid for 11,635 mammograms and an equal number of clinical breast examinations that otherwise might not have been done, for lack of financial resources.

Screening with mammography may have contributed to the decrease in breast cancer incidence in Rhode Island.

The effectiveness of screening with mammography is reflected in trends of stage-specific breast cancer incidence rates, analyzed in previous reports (Review). Over the course of the 1990's in Rhode Island, the incidence of *in situ* and localized breast tumors increased, while the incidence of regional and distant tumors decreased, signs of effective screening.

By the year 2000, 7 out of 10 breast cancer case reports in Rhode Island were from American College of Surgeons (ACOS) approved hospitals.

By the year 2000, almost all breast cancer tumors in Rhode Island were staged with American Joint Committee on Cancer (AJCC) methodology.

Cancer Control Priorities for 2004

Reduce the burden of breast cancer by maintaining current levels of breast cancer screening.

Maintain current levels of breast cancer screening by (a) maintaining existing infrastructure, (b) promoting mammography and (c) reaching out to uninsured women through the WCSP.

Reduce the burden of breast cancer by identifying existing barriers to screening.

Identify existing barriers to screening among those women not screened according to guidelines. Conduct a careful analysis of the unscreened population using data from the Behavioral Risk Factor Surveillance System (BRFSS) and the RI-Health Interview Survey (RI-HIS). Search for common characteristics that may identify target audiences and effective interventions.

Reduce the burden of breast cancer by increasing the proportion of breast cancer patients who receive state-of-the-art treatment.

Begin to eliminate disparities by identifying reasons for disparities in relative mortality.

Identify reasons for racial and geographic disparities in relative mortality, using data from the RI Cancer Registry, the BRFSS, the RI-HIS, and death certificates. Investigate variables such as socioeconomic status and stage-specific incidence rates among white and black women and among RI counties.